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Scouting Ecommerce: Electronic Tracking For Girl Scouts

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REGIS UNIVERSITY
SCHOOL FOR PROFESSIONAL STUDIES

MASTER OF SCIENCE
IN
COMPUTER INFORMATION SYSTEMS

Scouting eCommerce:
Electronic Tracking for
Girl Scouts

PROFESSIONAL PROJECT

Melissa Roetker

March 5, 2006

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**Regis University
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MSCIS Program**

Certification of Authorship of Professional Project Work

Submitted to: Cory Graham
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Student's Name: Melissa Roetker

Date of Submission: March 2006

Title of Submission: Scouting eCommerce:
Electronic Tracking for Girl Scouts

Certification of Authorship: I hereby certify that I am the author of this document and that any assistance I received in its preparation is fully acknowledged and disclosed in the document. I have also cited all sources from which I obtained data, ideas, or words that are copied directly or paraphrased in the document. Sources are properly credited according to accepted standards for professional publications. I also certify that this paper was prepared by me for the purpose of partial fulfillment of requirements for the MSC 696 or the MSC 696B course.

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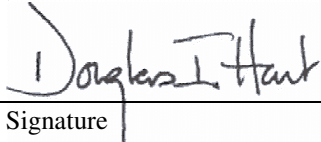
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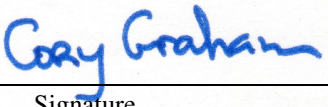
Professional Project Title: *Scouting eCommerce: Electronic Tracking for Girl Scouts*

Advisor's Declaration: I have advised this student through the Professional Project Process and approve of the final document as acceptable to be submitted as fulfillment of partial completion of requirements for the MSC 696 or MSC 696B course. The student has received project approval from the Advisory Board or the 696A faculty and has followed due process in the completion of the project and subsequent documentation.

ADVISOR

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Name	Signature	Date

MSC 696B Faculty Approval

Cory Graham		February 24, 2006
Name	Signature	Date

PROJECT PAPER REVISION HISTORY TRACKING

<u>Revision</u>	<u>Date</u>	<u>Description of changes and revisions</u>
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I would like to dedicate a page in this publication to those who pushed me to never let go, those who inspired me to finish, and those whose concerned and caring inquiries drove me to reach my dreams.

Thank you to my husband, Sean, who has always believed that I can be successful, when I try; but more importantly, I will succeed, when I believe in myself like he believes in me.

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ABSTRACT

Girl Scout Troop #343 relies on parent volunteers to keep the troop functioning. The troop leaders would like to reduce time spent on paperwork, in order to allow volunteers to focus on time spent with the girls. Other than meetings, the most time consuming activity for volunteers is the manual tracking of paperwork. This includes financial paperwork, badge and activity status, personal data, and other such information. Troops are on their own to find a method for maintaining records, without local or national support. Currently, Troop #343 has moved the finances to an electronic format, which has left the badge tracking system as the most frequently updated system, which is still tracked manually. The current method consists of a packet of papers for each girl, listing all possible current activities and badges. This system has no efficient way of updating records, no option for report creation, and no backup. An electronic method for tracking badges will streamline leader responsibilities, provide a system that can be easily backed up and allow all troop members to access their personal badge status.

CHAPTER ONE: INTRODUCTION

HISTORY OF GIRL SCOUTING

According to the website of the national Girl Scouts of the United States of America council, the Girl Scouts of America (referred to as “GSUSA”) is the largest international organization dedicated to helping girls grow into educated and skilled leaders of society. (GSUSA: Program) The organization started in 1912 with only 18 members in a single troop, and has grown over nearly a century into a membership of millions throughout the world. (History: GS Timeline) Having been in existence for nearly 100 years evidences the success this organization has experienced. This success is partially due to the fact that it provides a forum for girls to make lasting friendships, while building skills and experience that will help them throughout their lives. Participation in such an organization is encouraged from one generation to the next, proving and maintaining its success. However, to be such a successful organization with such a large membership, other factors are relevant in its success. Factors such as profitable fundraising, group organization, and strong adult volunteer membership are keys to the continued success of the organization.

The GSUSA website offers a great history of their very profitable cookie fundraiser. (GS Cookie) By the late 1930's the National Girl Scout Council had organized and licensed a commercial baker to produce cookies for fundraising purposes. In these first early years of this fundraiser, only a portion of the existing councils were reported to participate in

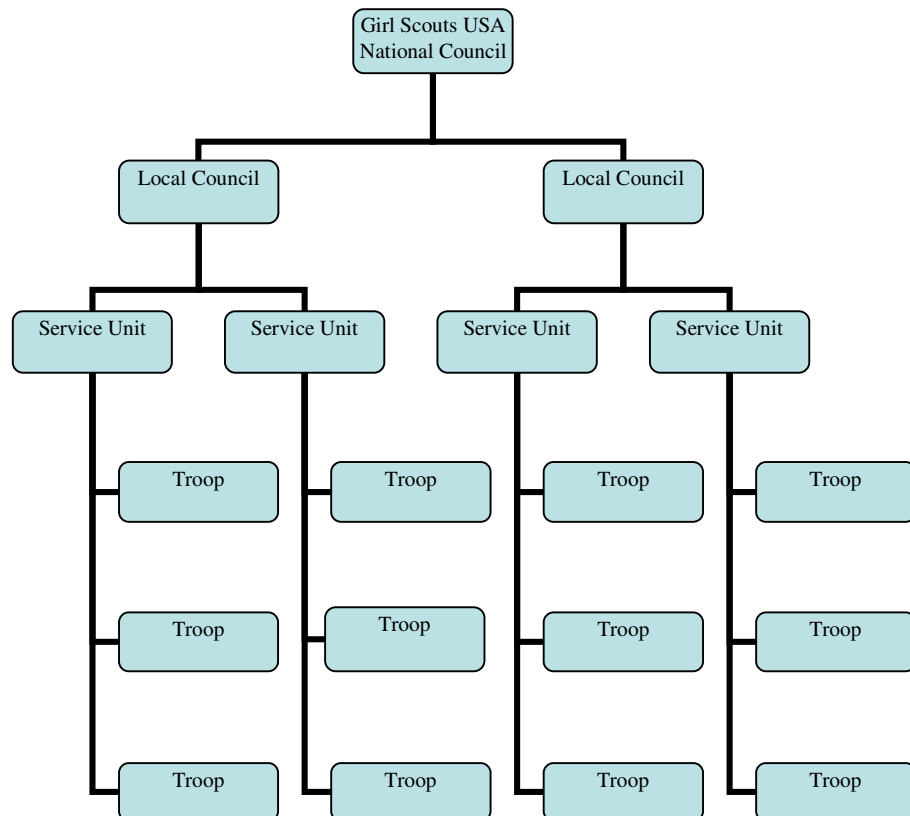
these sales. Fundraising was changed from cookies to calendars throughout World War II due to a shortage in ingredients needed for baking cookies. After the war, however, the national council once again licensed a number of local bakers to produce cookies for local councils. In 1948, the national council had licensed 29 bakers. Over the years, membership increased due to the baby boomer generation, which led to a dramatic increase in cookie sales. By the 1970's production of Girl Scout cookies was streamlined, in order to lower the prices and provide a more uniform product. This streamlining reduced the number of licensed bakers across the nation to only 4. Since the early 1990's the number of licensed bakers has ranged from 2 to 3, but the marketing has grown stronger than ever. Troops enter contests for the chance to appear as one of the pictures on the cookies boxes, depicting troops "having fun and growing strong." Girls compete individually for prizes, which are awarded for highest sales in the troop and council. Marketing is also done by both local and national councils, producing television commercials, radio ads, and other such marketing strategies that increase the fundraising opportunities on a local level with national aid. (Esposito) These strategies have produced one of the most successful fundraisers for such an organization, helping to lay the foundation for the organization's success.

The continued future of an organization of this size is also dependent on the organizational structure (see figure 1). The Girl Scout organization is structured, so that the national council oversees all local councils. Local councils have service units reporting to them, and the service units oversee the troops. (Esposito) In this manner, troops have a ladder keeping them connected to the national council through a matter of

only a few steps. Additionally, this structure allows for the local council to ensure that all members of the Girl Scout organization are trained and have the support they need for running troop meetings. The local councils work together with the national council to meet annual goals, but are on their own to provide training and guidance for members and leaders. Councils are reviewed every four years to ensure that they are fulfilling the Girl Scouts of USA standards. (What We Stand For) This organization structure allows responsibilities to fall naturally at the different levels. A distribution of responsibilities and requirements has allowed for growth within the organization, thus further strengthening its foundation for success.

Girl Scout USA Organizational Structure

Figure 1



Colorado has five councils that guide different areas of the state. The council for the Denver area is Girl Scouts Mile Hi Council. This council was chartered over 70 years ago and is now the 13th largest council in the United States. (About Us: FAQ) All troop leaders are unpaid volunteers and are required by the Mile Hi Council to attend training courses before acting as a troop leader. (Training: FAQ) These volunteers are key too the organization's overall success. Without them, there would be no organization.

According to the Mile Hi Council website, leaders are required to take two training sessions before becoming an adult volunteer. The type of training is based partially on the level of the troop, but all levels require Sessions 1 and 2 of leaders and co-leaders before starting a troop at the applicable level. (Required Training) Session 1 introduces prospective leaders to the characteristics of the age range girls that will be in their troop, in addition to learning about badges and activities that the girls will be working to complete. This session also discusses the importance of the role of the adult volunteer when working with both girls and parents. Session 2 is a follow up to session 1 and expands on the role of the adult volunteer, in addition to exploring additional activities that are made possible by the council.

Other councils have different requirements for their leaders. Some councils offer training that includes topics like banking and budgeting, specifically. Many offer training that covers only the basics and leaves troop leaders to figure out the rest on their own or through contact with other leaders. This ambiguity in training also flows into record

keeping. Many volunteers are left without a clear idea of how to direct a troop and keep necessary records in an easy fashion.

The important life lessons that a successful membership can bring only intensify the importance of the roles and responsibilities of adult members. In order for leaders to promote a fun learning environment in the troop, it is often necessary to spend additional volunteer hours in training, leaders' meetings, or even in one-on-one meetings with more experienced leaders. This additional volunteer time may discourage some leaders. Aside from this volunteer time, there is already time that must be allocated between training, leaders' meetings, planning and organizing troop meetings and outings, in addition to keeping troop records for member information, financial records, and tracking of activities and badge work. By finding ways to streamline running the troop, volunteers may be more inclined to participate, and keep troops active. It is necessary for the Girl Scout organization to focus on ways to reduce wasted time, to encourage more adult involvement and solidify continued success.

EXECUTIVE SUMMARY

Girl Scout Troop #343 of Aurora, Colorado is a typical Junior Girl Scout troop. The troop was founded in 2000 as a Daisy troop with three parent volunteers as leaders. Additionally, other parents volunteered on weekend outings and as fundraising coordinators. The ratio of volunteers to girls was approximately 1:4. (GSUSA 2004) While this ratio is at or slightly above average, the fact that adult membership in

Colorado decreased from 2003 to 2004, may be a trend that will lead to a necessary increase of volunteer time by the remaining adults. (GSUSA 2003, GSUSA 2004) If this becomes a lasting trend, it will inevitably lead to a decrease in the number of participating girls, either because troop leaders feel they cannot have larger troops, or because troop leaders will find themselves overwhelmed and may disband troops. Neither of these outcomes leads to success for the national council.

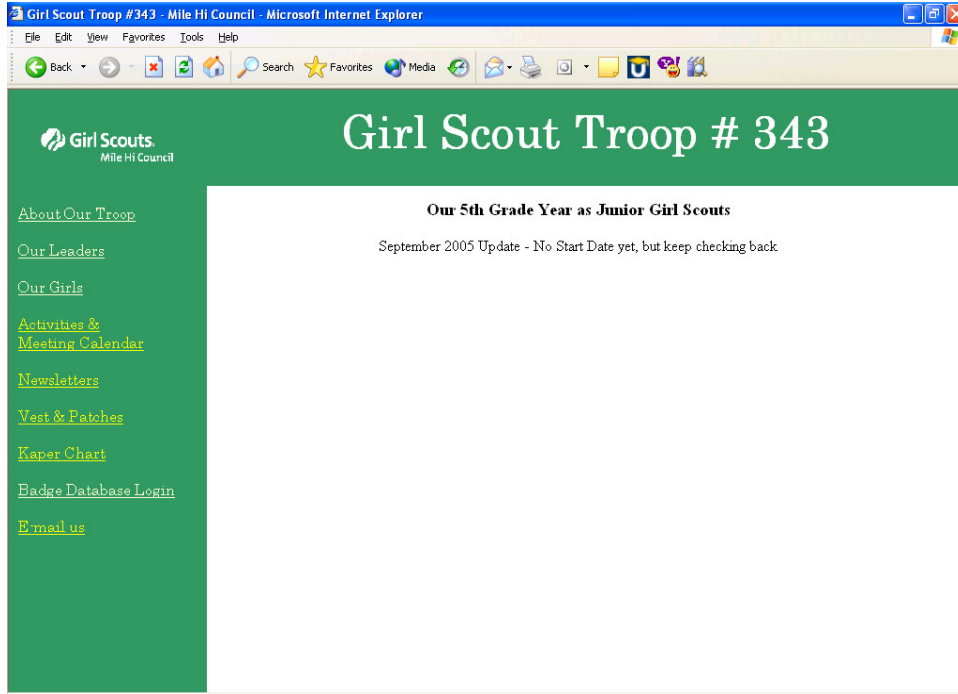
As a newly formed troop, Troop #343 kept financial records in a traditional green columnar pad, members contact information and health history were kept on handwritten index cards filled out at the beginning of the year by parents, and records of completed activities were kept in a three ring binder with sections for each girl containing a packet of papers with all possible badges and activities, where leaders could mark off completions. Information was passed to parents by way of a quick information session at the end of the meeting, or occasionally through a typed information sheet. All matter of business was run in a very manually manner.

By the year 2000, the average percentage of U.S. households with computers was already at 51%, while households with the Internet were already at 41.5%. (Home Computers) With the numbers of computer users quickly gaining on and outnumbering the number of non-computer users, it seems that turning to electronic record keeping would be not only a feasible solution to streamlining troop maintenance, but also one that could be applied to troops throughout a local or even national council.

In order to begin the migration, Troop #343 first opted to use Microsoft® Money for financial records in 2003. Creating standard categories based on those in the annual financial report made it easy to track and budget for spending, while having the ability to offer parents a look into the troops financial records at any time. It also took the troop a step further by reducing the amount of time required to complete the annual financial report from several hours to several minutes. By running a report in Microsoft® Money to show spending for the year, numbers were simply transferred from the program to the required form, and the report was complete. This was very encouraging to the troop leaders.

After the success with Microsoft® Money, the next step to becoming an electronic troop was to build a website. The website was designed to maintain privacy, while offering some information about the troop, the girls and the leaders, as well as a contact email address. It also contained links to an “activities and meeting” calendar, a troop kaper (or chore) chart, a link to a diagram displaying badges in the correct location on the vest, as well as a link to the newsletters. (see figure 2) The website was hosted by the free web host Yahoo® Geocities, due to the budget restraints.

Figure 2: Troop #343 Website Homepage



The upkeep of the website itself created additional volunteer time, but this minimal, additional work also freed volunteers from printing out and assembling information packets for each girl. The website also provided parents with a one-stop spot to check the calendar, see meeting minutes listing current and upcoming activities, and contact leaders. The added convenience was very popular with parents, who expressed their excitement at the new electronic format.

With their financial records in electronic format and with a working website, the last set of records still being tracked manually by Troop #343 were the activity and badge completion records. An electronic database to track this data will allow leaders and parents a quick and easy way to update information and view the current status for each girl, with the click of the mouse.

PROJECT SIGNIFICANCE

The Girl Scout badges can be found in the appropriate Girl Scout book for each level. Brownie Girl Scouts have “Try-Its”, while the Junior Girl Scouts have “Badges”. The Junior Badge Book lists the possible Badges that a Junior Girl Scout can work to earn. Each Badge generally has 10 possible activities. Some of the more specialized and online badges have fewer, but the typical badge has 10 activities to choose from. As a leader, outings and meetings are usually planned around a variety of these badge activities. A Girl Scout must generally complete 6 out of the 10 possible activities, in order to earn the badge. Girl Scouts can complete badge activities with the troop or individually. If completed individually or as makeup for a missed meeting, the Girl Scout’s parents must complete a form describing which activities were completed and what was learned. All of these activities must be tracked, in order to award the appropriate badges at the Award Ceremony that is often held two times during the year. The badges earned are a symbol of the accomplishments for each girl.

Currently, Troop #343 uses a separate matrix for each girl to track completed activities and badges (see Appendix A). This matrix is printed out as a packet and must be kept in a binder, since there is one packet for each girl. The binder must be taken to each troop meeting to enter data and be available for girls to verify their status, since this packet is the only method of tracking the girls’ activities and badge accomplishments. The binder must also be used for planning purposes, such as which badges have not been completed by the majority of the troop and could be worked on in meetings, as well as which badges

should be purchased for award ceremonies. This system does not provide for on demand reporting or an easy method of backup.

BARRIERS

Currently, the National Council does not provide or endorse any software for tracking troop activities. Several web searches retrieved files created by various troops for tracking. The searches retrieved only Word or Excel documents that require manual entry, and do not allow for dynamic reporting. These forms lead to the same problem of having one set of paperwork for each girl, tracking their accomplishments manually, and limiting the ways that girls, parents and leaders can report a girl's accomplishments.

The goal of this project is to find a form of tracking that will not be a great expense to the troop, since it is a non-profit organization. At the same time, the new tracking method should allow leaders, girls and parents easy access to update information and produce reports, while maintaining security and privacy. Based on the possible solutions, the main barrier that may affect the project is finance. Additionally, if the database is to be designed and developed "in house" rather than purchasing a pre-packaged product, electronic storage space and programming time and costs may be a barrier.

The second barrier that will need to be overcome is that of programming. The development of the online portion of the database will need to be outsourced, which may

be affected by the cost barrier. Various options will need to be researched and taken into consideration with regards to this barrier.

EXPECTATIONS

This project may not only lead to a record keeping solution for this troop, but as it is expected to be presented to leaders from various troops for survey purposes, this project may be one that many troops are interested in. Additionally, since this project is limited to the Junior Girl Scouts badges, surveying a cross-section of leaders may lead to additional requirements that may help in record tracking.

SCOPE OF THE PROJECT

A simple database should be easy to create using a program such as Microsoft® Access, but finding a way of creating a database and integrating it into a website will create a secondary set of issues. Not only will this require a programmer with web integration experience to incorporate needed functions such as reporting and security, but the system will also need to be designed so that can be easily maintained, in order to prevent additional work that may make such a system more cumbersome than a manual tracking system. The final product must be easy to use, in order for leaders, parents and girls to all find it worthwhile.

The scope of this project will include reviewing current systems to incorporate necessary functions, researching possible available products, researching possible system development by a local programmer, recommending the most feasible option, and completing a test phase of the recommended product. Analysis results will be compiled based on questionnaires given to leaders, parents and girls.

DEFINITION OF TERMS

Adobe® PDF: A file format referred to as a portable document format and designed by the Adobe® corporation.

ASP: Active Server Pages; a programming language developed by Microsoft® to allow development of dynamic web pages, such that they can be development based on a changing set of information. This program language is an effective tool for building a web page that displays data from a database

Database: A collection of data organized by records for easy viewing and managing purposes

Microsoft® Access: A database software created by Microsoft® and included in the Microsoft® Office Professional package

Microsoft® Excel: A spreadsheet software that allows data to be stored and managed in matrix form

MySQL®: A free, open source database programming system

PHP: A programming language, similar to ASP that interprets data to present a web page with a dynamic background source, such as a database

Web host: A company that provides space on a server for storing and hosting data that is viewed across the Internet

GSUSA: Girl Scouts of the United States of America, a not for profit organization dedicated to girls

SUMMARY

This project will benefit all involved in the Girl Scout organization. As a volunteer organization, it is important to keep in mind the goals of Girl Scouting:

1. Encourage girls to develop to their potential
2. Encourage girls to relate to others with increasing understanding, skill and respect.
3. Encourage girls to develop a meaningful set of values to guide their actions and to provide for sound decision making.
4. Encourage girls to contribute to the improvement of society.

These goals remind us of the importance of providing beneficial knowledge and experience for the girls, while maintaining a manageable organization for the volunteers. An interactive program, such as the one suggested in this project, will reduce the paperwork and maintenance time for the volunteers, while allowing girls and parents to ensure that girls are truly benefiting from their experience.

CHAPTER TWO: REVIEW OF RESEARCH

OVERVIEW OF RESEARCH

The basic problem, lack of standard electronic format for Girl Scout record keeping, was noted by observation, but additional confirmation was required to determine whether there were existing tracking options that had not been pursued and whether this issue is truly perceived as an issue by existing volunteers. In this search, several interviews were required. The project itself was designed for Troop #343, however, since the badges offered to troops are consistent for all troops in the nation, this project would ideally be offered to troops throughout the local council, and perhaps even nationwide. With this in mind, it was just as important to query the local troop and its service unit, as it was to query the local and national councils.

A great deal of research was completed on the local council and national council websites. The national council website contains a great deal of information on the history of Girl Scouting, including how it was founded, how it was funded, and how it is organized. Due to the fact that the organization is structured so that each local council is chartered, the national council does not offer information that is specific to how troops are run. While this information was interesting and helpful, further contact with the national council was still required. A call was made to the national council office in New York, where data was obtained on Colorado membership numbers. Further contact via

email provided additional information on the technological support provided and used by the council.

This information, while useful, still did not provide information on existing tracking options. The local council website offered more pertinent information. The two items that were relevant to the project were a checklist for tracking Junior Girl Scout badges and a link to a new endeavor by the GSUSA to reorganize their business strategy. The tracking form is in Adobe® PDF format, which means it must be printed out and updated manually. This is the only method of tracking that surfaced when the local council website was searched. The link that was found while searching this site leads to a website dedicated to the “Core Business Strategy” of GSUSA. This is a project that is just getting underway to revamp the structure and organization of the Girl Scouts, in order to make it a more effective and successful organization.

This information was pertinent, but did not answer the question of whether or not there is support for online tracking, or an existing system that allows troops to track badge accomplishments electronically. In order to verify that this was the only form available, a call was made to the Mile Hi Council office. The Mile Hi Council stated that they do not offer a software package to assist in tracking troop information. They did suggest that a Microsoft Office product be used to create a Word document, Excel spreadsheet or Access database for the troop’s own use. This information led to final research, looking for an existing product that would allow for online maintenance.

An online search turned up only three available products and several dead links. None of the products are developed or maintained by the GSUSA. Each of the products available had a purchase price between \$25 and \$75. Each product tracks activities and badges completed. Some of the products track additional information, making it very useful and allowing even less paperwork. However, none of the products are online products. Each product provides electronic tracking, but the second goal of the project is to allow multi user access. While these products can contribute to the development process, they still did not meet the goals of the troop.

Once the project was determined to be an endeavor which does not have a solution that is currently available, research was completed to determine what type of programming was best suited for this project. It is not only important to determine how the programming will be completed, but also what the cost and requirements of hosting such a site would entail. These final two factors are most important in determining whether or not the project is one that can go live, due to the non-profit nature of the troop.

TROOP LEVEL RESEARCH

The need for this project also required validation from the other troop leaders. In a meeting held to discuss the project idea, co-leaders expressed interest in having the ability to allow girls to see which badges they had completed, in an easy manner. This validated the idea of making the database accessible online. The leaders were intrigued with the idea of multiple leader logins, to allow any leader to complete updates. Not

having any prototype to base their suggestions on, they asked that the database track information based on the current method.

Using the current tracking forms to gain a general idea of what is currently being tracked, in addition to what the troop would like to be able to report, the database will fit the troop's needs uniquely. The Girl Scout web promise obligates a girl to maintain her own safety when on the Internet. (GSUSA: Internet) This also means that a database used to maintain personal information must be secure. This is a very important factor to the project development. Beyond the need for security, the new system will need to identify each girl, each activity, each activity's relationship to the badge, and each girl's accomplishments individually. The new system will also need to allow the leaders to recognize when a badge has been completed and when a badge has been awarded. These basic factors will be the basis for the project. The project will not be anymore in depth, due to factors that developed during the research stage: the development of a new business strategy for Girl Scouts which may include further Internet involvement, and the discovery that this is a project that should be developed on a much grander scale. The leaders queried generally asked for an "all-in-one" site that would allow them to store girls' addresses, contact numbers, records and other pertinent information, in addition to achievement records. Due to the private nature of this data, the database will be limited to the badge information. This project itself will be a simple prototype that will seek to introduce the idea of how modern e-Commerce can benefit this traditional organization.

LOCAL AND NATIONAL COUNCIL RESEARCH

Local councils develop throughout the country and are chartered when they meet the requirements of the national council. (About Us: What We Stand For) In Colorado, there are 5 local councils. (Tuchman) The Denver area local council is called the Mile Hi Council. This council's website is very informative, and comparable to many local councils throughout the country. The website offers a range of information and assistance to leaders, parents, girls and other interested parties. While this is a first step in the modernization of the organization, there are many more opportunities to streamline the organization into a modern e-Commerce success. When speaking with the local council, it was very interesting to find that troops are given guidelines on what can be used in a website, but are not given any support in developing a website. (Create a Web Site) The same standards apply to electronic applications. Guidelines and suggestions are provided, but support and products are not offered. It would be very beneficial to the national organization to provide these opportunities to troops nation wide. With the right support and development, this project could emerge into a new online community for Girl Scouts, providing support for volunteers and girls alike, and encouraging participation that would ensure the success of the GSUSA through the eCommerce era.

WHAT IS KNOWN

Existing methods being used do not allow for leaders to recognize the individual activities. Rather, each badge is listed and there are numbers 1 through 10 in the same

row, to be circled after completion. (see Appendix A) This can be confusing, since activities are generally identified by their name, for planning purposes and book references.

Existing methods being used do not allow for easy input by multiple users. Any leader wishing to update information must have direct access to the binder containing the records. With multiple leaders for each troop, this can delay updates or overload a single leader with duties, resulting in additional volunteer time.

Existing methods do not allow for girls to check their status, without conferring with a leader. If a girl misses a meeting, she must complete the activities missed, on her own, in order to receive the badge. An online database would provide a straightforward method for girls and parents to check their status, without the leader as the middleman.

WHAT IS UNKNOWN

At the start of the project, many factors were unknown and required research. The first factor was what database program to use. The options that were considered were Microsoft® Access or MySQL®. Factors to be taken into consideration in deciding between the two options considered were cost, availability, and experience with the programming system.

Creating an interface between the database and the web site presented another obstacle to overcome. The project manager was not familiar with programming such as Microsoft® ASP.net or PHP. Since this project was being completed for a non-profit group, there was little room in the budget to pay a programmer. In the quest for a resolution, a volunteer programmer stepped forward. This programmer was willing to create the interface pages at no cost to the troop.

The last pertinent question that had not been resolved was the costs that would be involved with hosting a website that required database interaction. While costs were being researched and considered, the problem resolved itself when the troop disbanded. The consideration was still important, as the project could easily be implemented for any other troop chartered with the GSUSA.

CONTRIBUTION TO THE FIELD

This project has the feel to it, of being a temporary fix to a problem that has not yet been identified nationwide, but affects troops throughout the entire GSUSA. A project such as this will not only encourage leaders in one local troop to move toward eCommerce as a resource, but will also likely have a national impact. With the upcoming business revision plans for the GSUSA, the time is right for a move to eCommerce, to connect and unite all troops. With the right influence, the GSUSA may be able to offer chat rooms for leaders to support leaders in other cities, states, or even internationally.

Contributions do not end with the leaders. As girls actively participate in their accomplishments online, they will see the importance and usefulness of eCommerce in everyday life. This encouragement may help to involve more girls in the IT field, expanding their knowledge and exposure to the technology that has been integrated with everyday life. This experience will better prepare young women for their futures.

Finally, the premise of this project can be expanded into a feature of the GSUSA that would increase efficiency in a manner that has likely not been experienced since the organization streamlined the Girl Scout Cookie® fundraising program. Consistency in an online community would also provide the forum for “train the trainer” style programs at a nationwide level. This would provide uniformity in requirements, ensuring that chartered councils were performing at the set standards.

CHAPTER THREE: METHODOLOGY

This project was initiated due to the desire to move the troop into the age of e-Commerce. E-Commerce has been an extensive benefit of the invention of computers and the Internet. This type of commerce has increased efficiency, allowing businesses to reduce overhead and increase profitability. While e-Commerce often refers to shopping or transactions online or via an electronic format such as wire transfers, e-Commerce is also inclusive of client interactions online. With this in mind, the idea that this project is based on revolves around moving the Girl Scout troops to engaging with clients/members online.

The premise of the project is that due to additional time spent on manual record keeping, volunteer hours are inflated, and often deter parents from signing up as volunteers. The Bureau of Labor Statistics showed that in 2004, the average person spent approximately 9 minutes a day on volunteer activities. (Bureau of Labor Statistics) The Girls Scouts of America is a non-profit organization, relying on volunteers to organize and lead successful troops. With so little time to spend running a successful troop, it is in the best interest of the GSUSA to find ways to reduce overhead time, and encourage parents to spend their volunteer time, furthering the education of their daughters.

With a project underway that could potentially influence the success of the Girl Scout Organization, the success of the project itself is very important. A successful project will be dependent on how it is run. The research model will affect how well the project is run,

and thus may affect the outcome. A project can have a solid basis, with great potential, but with poor project management, it may never succeed. With this in mind, there is a great need to review the options for developing the project, in order to enhance the probable success.

LIFE-CYCLE MODELS

Systems Development Life Cycle is defined by Whatis.com as a “conceptual model used in project management that describes the stages involved in an information system development project, from an initial feasibility study through maintenance of the completed application.” (Definitions) Within the category of Life Cycle models, several have been developed over the years. These include models such as the Waterfall Method, Rapid Application Development, the Spiral Model, the Build and Fix Method, and the Stabilize and Synchronize Method. There are many other methods that are used, but these are some of the more common methods. In general, each model or method should incorporate the general steps of a Life Cycle. These steps are generally as follows:

1. Examine the existing system for problems and deficiencies
2. Define the requirements of the new system
3. Design the new system
4. Test the system in a test environment, and make any needed adjustments
5. Implement the new system in a production environment
6. Allow time for the new system to be utilized, then re-evaluate and maintain the new system

Each of the methods mentioned was compared in order to select the appropriate method to use for this project.

The Waterfall Method is deemed to be one of the original methods developed. It is also said to be the least desirable, because there is no allowance for revisiting previous steps. The Waterfall Method follows the general steps, and as such, does not begin a later step, until the previous step is completed. (Definitions) This method only allows for user input during the evaluation and testing phases. It is less useful in dynamic environments, but is still a common method.

The Rapid Application Development (RAD) method does not necessarily evaluate an existing system. (Definitions) Instead, there is generally a session with users to gather requirements, and then a prototype is built. The prototype may use and reuse the existing system. This methodology is seen as a better fit for object oriented programming. Once the users have approved of the prototype, the actual system is designed based on this.

The Spiral Model is much like the Waterfall method, in that it follows the same steps. The difference is that the Spiral Model takes into account that there may be a need to revisit previous steps. (Definitions) In order to compensate for this, it is actually a series of shorter Waterfall Methods. The steps are completed once to design a prototype, then steps are followed a second or multiple times until a satisfactory prototype is designed, and the project moves into the final system design. This method is preferred for larger,

more expansive projects, as it also allows for the project to be terminated if it is deemed to be cost-ineffective or unnecessary for any other reason.

The Build and Fix method is just as it sounds. It is a very basic method that does not incorporate planning. (Definitions) Rather, a system is programmed, delivered to the user, and modified as the user requests. This is a very risky method, since it does not allot for planning that may reveal the project to be undesirable.

The Synchronize and Stabilize method incorporates portions of the Spiral Model and Waterfall Method, but allows for various departments to work on the project simultaneously. This method allows for planning, and also allows for flexibility in the system development. This method has been used by many of the big software developers, such as Microsoft and Netscape. (Definitions)

Based on the review of these methodologies, the size and nature of this project indicated the Waterfall Method to be the most appropriate. The goal of this project is to develop a working system for the Girl Scout Troop, but due to the fact that barriers exist to begin with, there is the distinct possibility that the system may be unachievable at this point. Based on this reasoning, the Waterfall Method was chosen as a sufficient method.

WATERFALL METHOD AND ITS USE

The Waterfall Method uses the following steps:

1. Project planning
2. System analysis
3. System design
4. Implementation
5. Integration and testing
6. Acceptance and deployment

While this method would not be used under normal circumstances due to the fact that it does not allow for an opportunity to fix parts that are not accepted, it was used in this project. The reasoning for this is based on the barriers of the project. The main barrier revolved around financing. Free software or software that was already owned by a member of the troop must be used. If programming is required that is beyond the ability of the project manager, then an outside programmer must be hired, which again may cause a work stoppage due to the financial barrier. Finally, there was a concern that hosting the database may require a web host with a monthly fee, which is something that the troop could not afford, again due to financial barriers. With this in mind, the project was intentionally developed as a prototype, or a local database, which could then be put in place if the financial barriers could be overcome.

SPECIFIC PROCEDURES

Project Planning

In order to gather appropriate information to create a successful project, four sources were queried. The main three sources were the GSUSA, the Mile Hi Council, and the current troop leaders. The final source queried was the Internet. The reason for this final query was to search out any existing product that would serve the needs of the troop.

Querying the existing leaders resulted in an anticipation of a system that would relieve efforts of the leaders to keep all records consistently up to date. There were four main goals of the system:

1. Maintain records with the same information as the current system
 - a. Activity as it has been completed for each girl
 - b. Badge as it has been completed for each girl
 - c. Badge as it has been awarded for each girl
2. Allow for multiple leaders to create and modify users, and update records
3. Allow for parents/girls to run individual reports, and leaders to run troop reports
4. Maintain privacy

The next step was to see if the local or national council offered something of this sort that had been as of yet unseen by the troop. Upon contacting the Mile Hi Council, it was verified that nothing was available. It was suggested that the troop use Microsoft® Word

or Microsoft® Excel to build a check-off list for each girl. Another suggestion made by the local council was to create a database using Microsoft® Access. No assistance was offered in developing any of the suggested formats.

A search of the Mile Hi Council website returned an Adobe® PDF file for tracking records. This file lists badges alphabetically, and offers the numbers 1 through 10 to track the activities that have been completed for the badge. Additionally, there is a location to enter the date completed, but no location for the date awarded.

Upon contacting the national council, the troop was directed to contact the local council or contact other leaders for their forms. It seems that based on the structure of the organization, the national council does not offer assistance at the troop training level. An intensive search of the national council website resulted in no forms for tracking, but did return a list of badges, as well as several links to find the local council.

The last research completed was to look for products that have already been developed. This resulted in several MS Excel and Word documents that are used by other leaders around the nation. Additionally, there were products found online. The chart below depicts what was found:

Table 1: Existing Application Comparison

Product	Price	Badge Tracking	Additional Tracking	Online capability
G – Scoutmate	\$29.95	Yes	Yes	Yes
Badge Manager Plus	\$15	Yes	No	No
TroopMaster – GS	\$59.95	Yes	Yes	Unknown

As these items were being researched, another potential barrier arose for Troop #343. Due to relocation of existing parent volunteers and lack of willing replacement parent volunteers, the troop was forced to disband. The research, however, had uncovered an existing need for an electronic form that would allow fellow leaders to track their troop information. It was decided that the troop record-keeping project should continue to completion and be introduced at any available level to encourage troops, councils, and the national council to recognize the efficiency that moving to a paperless system may provide.

System Analysis

The project will be developed in two parts. The first part will be the database, which will be designed using Microsoft® Access. MS Access was chosen over a different programming option such as MySQL®, which is free, due to the existing knowledge of programming in Microsoft® Access and the fact that Microsoft® Access is currently owned by the project manager and will not require any additional financial output. In order to run this software, Microsoft® XP is recommended and is currently owned by the project manager, as well.

The second part to be developed will be the web interface. This part of the project presented a barrier, in that the project manager was not familiar with either of the two options considered: PHP and ASP.net. In order to maintain the “no-cost” budget, volunteers were sought to assist with this part of the project. While PHP would be the preferable programming language due to the comparison below taken in partiality from an article by Sean Hull, ASP was chosen due to the pre-existing knowledge of ASP by the volunteer programmer.

Table 2: PHP vs. ASP.net (Hull)

	PHP 5	ASP.net
Software Price	Free	Free
Platform Price	Free	Cost
Speed	Strong	Weak
Efficiency	Strong	Weak
Security	Strong	Strong
Platform	Strong	Weak (IIS only)
Platform	Any	win32 (IIS only)
Source Available	Yes	Yes
OOP	Strong	Strong

System Design

Design of the database was based on the records that are currently being tracked. (See Appendix A) The current document used for each girl is three pages long and breaks the badges down into sections defined in the badge book developed by the GSUSA. Each badge has cells under columns numbered one (1) through ten (10), intended to represent the activity under that badge heading. These cells can be input with the date that the girl completed the activity. The last cell in the row is for the date that the badge was actually awarded to the girl.

In planning the design of the database, security is a necessity. This created an additional requirement of a non-identifiable id and a password. The information gathered from the tracking form, and the security requirements led to the following required items:

Table 3: Required Data Fields

Source	Information to Track
Girl Information	<ul style="list-style-type: none"> • First name • Last name • Initials • Id (this should be non-identifiable) • Password • User type
Badge Information	<ul style="list-style-type: none"> • Badge Section • Badge Name • Badge Completion date per girl • Badge Award date per girl
Activity Information	<ul style="list-style-type: none"> • Activity Name • Badge Association • Activity Completion status per girl

Based on this information, a Microsoft® Access database was created with seven tables. The tables allowed only information associated with the activities and badges to be tracked. It also allowed the multiple activity names to be associated uniquely to badges, by creating a separate table for this purpose. Once the database was completed, the next phase could begin. The tables, their fields and the reasoning for each field is detailed below.

The first table contains information about the girls in the troop. The first field is the primary key, and must be unique. Also included are separate fields for first and last

name, as well as initials. The field for access level determines whether the user has administrative rights or basic user rights. The last field in the table is for the password.

```
table:girls
  field:gid (girl id, unique)
  field:initials
  field:fname
  field:lname
  field:accesslevel
  field:passwd
```

The second table is for the sections that the badges are divided into in the badge book provided by the GSUSA. This table only has two fields: one for the primary key which must be unique and the second for the section name.

```
table:sect
  field:sid (section id, unique)
  field:section_name
```

The third table is the badge table. This table has three fields. The first two fields are the primary key and the badge name. The third field ties the badge to a section, since this is a many to one relationship.

```
table:badge
  field:bid (badge id, unique)
  field:badge_name
  field:sid (associates each badge with one section)
```

The fourth table is the activity table. Due to the relationship between the activities and the badges, this table has only two fields: the primary key field and the activity name field.

```
table:activity
  field:aid (activity id, unique)
  field:activity_name
```

The activity description table ties together the activities and the badges. The reason for separate tables is that some activity names belong to multiple badges. In order to create the necessary relationship, this table has a primary key for the activity description and then creates a unique activity by linking together the activity id and the badge id.

```
table:activitydesc
  field:adid (activity description id, unique)
  field:aid (associates each activity description with one activity)
  field:bid (associates each activity description with one badge)
```

The last two tables are for the completion of the activities and badges. The activity completion table has a field for the primary key, and then associates a “girl id” and an “activity description id.” The final field in this table is a “yes/no” field to denote whether or not the activity has been completed by the girl. The badge completion table is similar

in that it has a primary key field, and associates a “girl id” with a “badge id.” The last two fields in this table are for the completion date and the award date.

table:actcomp

field:acid (activity completion id, unique)

field:gid (associates each activity completion with one girl)

field:status (on/off)

field:adid (associates each activity completion with one activity description)

table:badgecomp

field:bcid (badge completion id, unique)

field:gid (associates each badge completion with one girl)

field:bid (associates each badge completion with one badge)

field:compdate (completion date)

field:awarddate (award date)

Upon completion of the database, the Internet interface development stage began. The volunteer programmer began work, but once again, a barrier arose. The volunteer programmer had a time crunch on work related projects and was unable to continue with the volunteer project for the Girl Scouts. This problem led to a very interesting resolution.

It was suggested the project manager look into a website called rentacoder.com. This website pairs individuals looking to have programming completed, with a willing programmer. The buyer places the requirements online and coders bid on the project. When the buyer accepts a coder’s bid, the project begins.

In this situation, requirements were placed online and within 24 hours, there were 9 responses. The bids ranged from anywhere from \$13 to \$500. Prices seemed to correlate

with the location of the programmer. There is also a rating system with comments, and an online resume. The bid that was accepted for the proposal was from a programmer named Prem, located in Chennai, India, listed as having 7+ years of experience and a Master's Degree in Computers. His rating was 8.78 out of 10 possible points, and comments on his rating were generally good. The bid that was accepted on this proposal was for \$25, which in accordance with the project's meager budget.

An information packet to help explain what was desired was uploaded, along with general requirements. (see appendix B) Prem was in contact immediately and began work right away. Within 7 days, the first version was posted on his website and the files had been uploaded to the rentacoder.com site to be downloaded and tested. By logging in as an admin and then a user, each link was followed, to provide a thorough test. The testing revealed several issues that needed to be addressed, as well as some additions that would make the interface more "user-friendly."

The issues with the system included additional wording - "select gid from girls" - that needed be removed from the "Badge Admin" screen. This was unnecessary text in the asp file. The next item that needed to be corrected was on a login with user rights. When logging in with this type of id, the Badge Administration page was visible. Only those with admin rights should be able to view the Badge Administration page, as this page allows the user to update completed badges for any other user. The final issue was discovered, when testing the "add user" option. User "15" was added, and after logging in as this user, every user in the "User Maintenance" screen was visible. Accounts with

“user” level should only be able to see their own "user" information for security purposes, which made this a critical correction.

In addition to the corrections required, there were also some changes that surfaced as enhancements to the requested system. When testing, it was discovered that there was no option for logging out, so a request was made to add a link to the main screen, to "Logout" of the database and return the user to the login screen. Similarly, there was no option to "Return to Main Screen" where the user will find links to each of the available pages. This addition was also requested.

When testing, it became confusing to remember which user was currently logged in. While this may not be an issue for a girl logging in at home, if Internet access were made available at a meeting, it would be helpful to know who was currently logged in. Therefore, it was requested that each page have text included to show "Currently Logged in as <name>"; this will assist leaders who may also have a girl scout in the family to determine who is currently logged in. Also, if there is an option for the entire troop to visit a location where they can take turns logging in, this will help to identify whose account is currently being viewed.

One last addition that was requested was on the Report Creation screen. A link needed to be added to return to the main Report Creation page. This would allow a leader to view the report for one girl, and then return directly to the report screen to view the next girl's

report, instead of having to go back to the main menu & follow all the links through again.

The initial set of corrections was made within 3 days. The enhancements had an additional charge of \$10. Once these corrections were made, another round of testing was completed. This round led to one more set of necessary corrections.

After adding badge information in the “Badge Admin” menu, unnecessary text was displayed on the page. For example: "insert into badgecomp (gid, bid, compdate) values (4 ,5, #10/31/05#)" would be displayed on the page. This needed to be removed. Additionally, when trying to select the first option in a drop down list, the option was not available. For example: User "1" could not be selected for report creation; the 1st badge option in Badge Administration could not be selected. All options will need to be available for selection in a functioning database. Next, when the “Badge Completion Date” was the only data entered on first updating the record, all dates ended up being wiped out if changes or updates were made at a later time. This needed to be corrected to keep both dates when updates are completed. Lastly, a "reset" option had been included on the login screen and the user/password modification screens, but was not requested in the original programming request. There was no need determined for these options, and it was requested that they be removed.

These corrections took 2 days to complete. Once completed, final testing took place, and the project was signed off on. This process was very smooth, and the only testing done

was by the project manager. Due to the fact that testing was done and some changes were made, this more likely fits in the spiral methodology. There was, however, no user testing for the corrections that were made.

REVIEW AND PRESENTATION OF DELIVERABLES

After having completed the project design, the next step was to present the system to the intended users for testing. Due to the fact that the troop had disbanded, because of lack of volunteers, the only two leaders available to test the system were the project manager and one other leader. Also, after the troop disbanded, some families had moved away and were therefore, not available to test the database. This led to an obstacle with presenting the project for feedback.

Once every month, the local service unit has a leader's meeting to discuss all upcoming events and deadlines. Arrangements were made to present the project at this meeting. The goal was to get responses from a cross-section of leaders and parents. Surveys were developed and handed out to get an understanding of the experience of the leaders in attendance. (see Appendix C) Surveys also queried the method of tracking used by the leaders for financial records and activities.

A Microsoft® PowerPoint presentation was created and presented at this leader's meeting. The presentation reviewed how a leader's volunteer time is spent between training classes, planning time, leader's meetings, troop meetings, planning and tracking,

and miscellaneous meetings and tasks. The presentation also discussed the main tasks that a leader spends time on and how these tasks can be completed more efficiently with electronic applications.

Both the website pages and the database interface pages were housed on the laptop from which the presentation was given. This allowed the leaders to view the troop website, which inspired questions on how to setup a troop website. From this troop home page, leaders were able to view a demonstration of the prototype database. As examples, leaders viewed how to login with an administrator login, in order to add or modify user ids. Leaders also saw how to update activity accomplishments and badge completions. Once this demonstration was completed, leaders viewed the login of a user, to see what girls would be viewing when they looked at their reports. Once the demonstration and presentation were concluded, there was a question and answer session while leaders completed surveys.

The question and answer session led to a lengthy discussion about setting up a troop website. Additionally, many leaders expressed their interest in a working version of the database. Finally, there were many comments on expanding the database to an all encompassing database. Leaders would like a one-stop location for forms, tracking, and submitting required paperwork.

The group was encompassed of a majority of leaders, with 50% being both a leader and parent of a girl scout. There was a great range of experience among the group, with the

majority having been a volunteer with the organization two to three years, and estimating their weekly time spent doing work for the group at six or more hours. Only a small percentage of the surveys (19%) were completed by leaders who had been part of a disbanded troop.

With regards to electronic tracking versus manual tracking, 50% of the respondents use manual tracking for finances. 31% of respondents already use an electronic tracking system for troop finances, and an additional 19% use a combination of manual and electronic tracking for their finances. In stark contrast, 94% of the respondents use manual tracking for activities. Results showed that leaders are split down the middle as to their preference. 38% prefer manual tracking, 38% prefer electronic tracking and the remaining 24% did not have a preference. None of the leaders responding have a troop website, which is likely the reason that this was a main topic during the question and answer session.

81% of respondents communicate with parents via email, and feel that an online tracking system, such as the one demonstrated, would be beneficial to volunteers. 88% felt that this type of tracking system would also benefit girls and parents affiliated with the troop. When queried on the apparent ease of use, 75% responded that they felt the demonstrated system appeared easy to use.

OUTCOMES

Identifying this project as an organizational need seems to be the tip of the iceberg. While working on the project, many ideas came up for how to expand the project, enhance the project, and further the organization. In the same time frame, the Girl Scouts of America have set on a new project. The GSUSA has a project underway to transform the current organization with a new business strategy. While it is only in the beginning stages, one of the items under consideration is plans for eCommerce support. (Esposito) This project would be one that the national council ought to take into consideration when looking into eCommerce support. Since the badges themselves are standard across the nation, it would be a step in uniting councils, units and troops. In the meantime, hopes are that it will encourage individual troops to find ways to make their troops more efficient. For older troops, the goal is that an online system will encourage girls to get involved in the eCommerce age.

SUMMARY

Undertaking a project of this importance was a great learning opportunity. The choice of methodology presented a cause for understanding how a project should be organized and run. Because the project did not involve much user testing, over the course of the project it has become clear that the original methodology chosen is not what was truly in place. Methodology is more fluid than first expected, and should not be seen as a rigid set of rules. This project seems to have used a combination of the Rapid Application

Development method and the Waterfall Method. Stages were definitely followed to ascertain requirements and review the existing system, but the end product is much more along the lines of a prototype with many possible enhancements waiting to be implemented.

CHAPTER FOUR: PROJECT HISTORY

BRIEF HISTORY OF MODERN COMPUTING

The computer has a long history, dating back to 3000 BC with the invention of the abacus. While there was not much improvement over the following 4700 years, in the last 2 to 3 centuries, the advances have been astounding.

From the early invention of the abacus to the modern day technology of personal computing and the Internet, computers have become a part of every day life. They are used in everything from ATM cards for banking and computers in cars, to highly technical advances such as space programs and national security. Businesses have been able to take advantage of the advances in technology provided by government agencies, universities and technical corporations. eCommerce has provided new ways for businesses to become more efficient and productive. These same advances are available to non-profit organizations as well, and should be taken advantage of to improve efficiency and secure success.

One of the most important advance and keys to eCommerce is the Internet, which is a network of computers around the world that users can connect to from any location with Internet access. The benefit of this web of connections is that more consumers can be reached than any other media available. The reason is that anyone can visit a website

from anywhere in the world, and businesses can provide the same information in multiple languages simultaneously.

Another benefit is the speed of the connection. Computers have increased in speed in the years since the first computer was invented. They can compute complex problems in seconds, and are even working on projects as important as mapping the human genome. With tools this powerful right at the fingertips, it is easy to improve processes, and only makes sense to attempt to make these improvements wherever possible, including non-profit organizations.

HOW THE PROJECT BEGAN

The project is one that began to fill a need. In an organization that has been going strong and changing with the times for over 90 years, it was surprising to find that the use of computers had not been embraced, to simplify and streamline troop organization. Many years of experience in the field of technology made it easy to identify simple steps that could move the troop toward the electronic age, helping the volunteers to regain time being wasted on overhead.

The first, and most simple step, was to begin using Microsoft® Money for the finances. This step did not require any preparation time. It was simply a matter of entering a beginning balance, and entering all subsequent transactions. The benefits, however, were substantial for the troop. The main benefit was reaped at the end of the year when the

annual financial report came due. The process of filling out the financial report – a one page form – had been an annual two to three hour process. The new process took about 45 minutes. It was a simple matter of printing a report of the last year's transactions and transferring the data to the form. Additionally, having the finances in Microsoft® Money provided the leaders the ability to offer a financial status report to parents or the council at any time it might be requested. This provided a sense of stability for both the leaders and parents involved in the troop.

The next advancement toward the eCommerce age was to create a troop website. While this was not a step that necessarily reduced volunteer time, it did provide a sense of unity and emphasized that the troop was keeping up with the times. A search on Google.com will retrieve a number of Girl Scout troop websites, which emphasizes that many troops are entering this age of the Internet. The troop website provided a one-stop site for girls and parents to view the calendar of events for the year, a diagram displaying how patches should be sewn on the vest, monthly newsletters, as well as a place to contact the troop leaders via email, among other links. The website itself added some volunteer time for upkeep, but after a few months of tweaking, the site was adjusted to keep maintenance requirements minimal. The benefits included less time spent printing newsletters, less time spent printing and distributing information, and even parents benefited by having a single location that was always available with meeting and event times.

These steps were extremely helpful in furthering the efforts of the troop to move toward a “less-paper” environment. While there was never a plan in place for moving to a

completely paperless environment, the next set of paper keeping that seemed to be a cause of grief for the leaders was tracking the accomplishments of the activities and badges. The overall goal of the Girl Scouts of America is to create leaders of the future and the method for reaching this goal comes mainly in the format of badges that are earned by completing a specified number of standardized activities. This is also one of the few set standards in Girl Scouts throughout the US - badges and activities guidelines and requirements are set by the national council for Girl Scout troops nationwide. The way in which leaders are trained and troops are run, however, is determined by the local council of which they are a member. These inconsistencies in guidelines result in a number of different forms for tracking the girls' progress.

Mile Hi Council in the Denver area offers Adobe® PDF forms for each level of activities (i.e. Brownie Try-Its, Junior Badges, etc), but these forms are not interactive. One form must be printed off for each troop member, and tracking is completed manually. Upon calling the Mile Hi Council for assistance, it was suggested that the troop use a Microsoft® Excel spreadsheet or build a database using Microsoft® Access. There was no preformatted Microsoft® Excel spreadsheet or Microsoft® Access database offered.

A search online revealed several forms which are used by other troops around the country. Some of the forms are in Microsoft® Excel and some are in Microsoft® Word. There was no location of any type of pre-built Microsoft® Access database. A further search revealed at least two programs available for purchase, designed to track the

activities and badges, at minimum. Another similar program also tracks items such as personal information, financial records, event planning, and other pertinent information.

Based on these searches and inquiries, it was determined that a database could be built using Microsoft Access. Using this database, an online form could be developed and used in conjunction with the troop's website. In choosing this method, database design could be completed in house. From there, it was undetermined how the code would be written to make the database available online.

HOW THE PROJECT WAS MANAGED

The project was managed by a single project manager. The project manager has also volunteered as a troop leader, which allowed first hand knowledge of the issues being addressed. By having a single project manager, there was one point of contact and one final decision maker.

It was determined that a simplistic methodology was needed for this project, since the project had only very basic goals. In reviewing the existing forms, the design was very basic and covered only the most necessary information. The project was designed to follow this lead, but enhance the tracking process by providing access to multiple users at multiple levels from any location with Internet access. When the project was proposed to fellow leaders, the response was incredible. Excited reaction led to great anticipation of an online system. The steps that had already been put in place – Microsoft® Money and

a Troop Website – had already been met with great enthusiasm by both leaders and parents, and this project was expected to have similar praise.

One of the key features of this project is its simplicity. The more difficult portion of database design and maintenance is done behind the scenes. That is to say that the administrators and users will have very little maintenance concerns. The main maintenance item will be adding new users or resetting their password. Beyond that, the actual badge administration process is a series of drop down menus, which is very straightforward, lending to little training requirement. By managing the project in such a way that the end product is simple, yet effective, the likelihood of success is that much greater.

SIGNIFICANT EVENTS AND CHANGES

The project was intended as a completely volunteer project. Unfortunately, life does get in the way, and flexibility must be maintained. The one major event, which led to a change in the original project plan, was in the change of the online developer. When the volunteer was unable to continue with the project, it came to a standstill for a period. Determination and faith in the outcome of the project led to the discovery of the rentacoder.com website. This site was an incredible gift and would be recommended to any who have a project in mind, but feel that they are lacking in some area of programming. The security that was displayed instilled an uncommon confidence.

HAS THE PROJECT MET THE GOALS

This project has been a great lesson in taking on and managing such an endeavor. There is room for improvement everywhere. The most interesting discovery in this project is just how alone the individual troops seem to be in their support of running a troop. eCommerce is the perfect venue for bringing these individual teams together within the organization, without having to expend resources on extensive training programs. eCommerce is a great venue for train-the-trainer programs, and the benefits would be exponential. There is no denying that this is the Information Age – the age of computers.

While this project has not been implemented in the environment that it was originally intended for, it is believed that were it to be implemented, its success would be great. This now provides a veritable online system for tracking the activities and badges that each girl has completed. The goal of the project was to have an online source for leaders to update records and girls to view their badge status. The programming has been completed, but the online access goal has not been met due to financial barriers. At this stage, the final goal has not yet been achieved.

WHAT WENT RIGHT OR WRONG

When first beginning this project, it had been some time since a database had been developed by the project manager. Creating a successful database required consulting with more experienced database programmers. In this process, the ideas of developing a

strong database were reviewed and put in place. The database itself is a strong source, and has been thought out in such a way as to minimize necessary data input. This was a powerful motivator in finishing the project. The ability to see how the end result would be tracked, and the confidence of knowing it would be stable was encouraging at the onset of the project.

One of the experienced programmers, consulted with on the database, also works to develop projects in Oracle. Before finding a volunteer programmer, this expert programmer took to the project with a strong desire to assist, and wanted to help by developing an Oracle portal for the project. The offer was generous, but in researching the purpose and use of Oracle, it was determined that this product would not meet the project requirements. If the troop were to maintain the project on its own, or if the project were to grow to be used by other troops, units, councils or even on a national basis, the cost of the software would be more burdensome than any one of these units could afford. Research was done on the possible use of Oracle, parallel to consulting on this possible route for the online portion of the project. The time spent on an option that was so far from a valid option, was time that delayed the project by at least two weeks. This should not be considered wasted time. The research completed was enlightening regarding other options that exist, and what they are capable of, but in the end, there was no comparison that the route that was taken was the better route for the project.

FINDINGS/ANALYSIS OF RESULTS

In order to determine how successful this online database would be considered, a survey session was necessary. The original plan was to present the database to parents and leaders for feedback. Due to the fact that the troop could not get enough parent volunteers to continue into the 2005-2006 school year, this was no longer an option.

Additionally, the budget had never been designed to finance the cost of a web host that would allow Access databases. This barrier meant that the prototype database was only available on a local machine. For presentation purposes, this would not cause a problem, but if testing were to be required by anyone without access to the local machine, additional problems would be encountered.

In order to get appropriate feedback, arrangements were made to present the prototype database at a service unit leader's meeting. This meeting is held monthly for all leaders in the service unit. As has been shown, the service unit is the level above troops in the Girl Scout organization. This presentation would allow for feedback from leader's who are also in many instances parents. This opportunity would also allow for feedback from leader's who have had many years experience with the organization. Surveys were handed out prior to the presentation, in order to get accurate responses. (See appendix C)

The presentation was considered extremely successful. A brief overview of the troop website and online database showed leaders the basic options that had been developed

into the database for the Junior level badges. While it was explained that this database was not a production database, but rather a prototype, much interest was expressed in seeing a working model.

The greatest outcome from the presentation was not in the database itself, but in the interest sparked in the use of websites. Many leaders were encouraged by the idea that information could be placed online for access by parents. The example of the troop's website exemplified the potential for all troops. Free web hosts were discussed, as were software and programming options for developing the actual web pages.

Feedback from the surveys showed that the audience was a clear mix of adult leaders and leaders who are also parents of a girl scout. The majority of the respondents had been involved with girl scouts for more than two years, and estimated themselves to spend two or more hours per week on volunteer work. The majority of the respondents currently use a manual method, as opposed to an electronic application for tracking finances. Only one respondent listed using an electronic spreadsheet application to track badges. All other respondents track badges manually.

With regard to the feedback on the prototype system, great interest was shown. Leaders felt that a system such as this should be provided by the national council, but were interested in having access to a system, even if it were only provided at a local level. Additionally, suggestions were made as to improvements that leaders would like, to enhance the database. Leaders would prefer a single report that showed the achievements

of all girls for a certain time period, to simplify reporting. It was also mentioned that they would prefer to have an option to change the girl being reported on, without having to return to the report creation menu. Perhaps this could be done as a drop down option. A request was submitted to be able to update in such a manner that a badge could be selected and the girl would then be associated with the activity under the badge, rather than selecting a girl and associating the badge.

The last suggestions that were made, would apply at the national level. Leaders were excited to see the possibilities that eCommerce has to offer, but some felt that this should be the project of the national council in a much broader perspective. Leaders expressed a desire to have a single web interface, in which they could submit registration forms, permission slips, track finances and submit required financial documentation, or track fundraising efforts, badge activities, and any other pertinent information. This suggestion would be appropriate for the newly formed Core Business Strategy effort.

CHAPTER FIVE: LESSONS LEARNED AND PROJECT EVOLUTION

LESSONS FROM THE PROJECT EXPERIENCE

This project was not only the culmination of 36 hours of work toward a Master's Degree, but it was also a self-understanding process. To create a project from nothing and take it through development stages to implementation has created a great sense of achievement. It is very fulfilling to realize that in this society, there is always room for improvement. This is not a critique of how existing processes are wrong or bad, but rather the innovation of change that has brought us so far forward as a society.

A review of the history of computers shows that it took over 4700 years to make a device that was more ingenious than the abacus. The changes in life and society in those 4700 years is so much more astounding and moved so much quicker than development from the abacus to the first machine that could do algorithmic computation. In the last century, electronic developments moved so quick, that it is hard to keep up with. Computers seem outdated only months after they are released. Software upgrades are available on such a frequent basis that computers need to be set to check for updates on all of their different software systems themselves. With all of the strides made in the last 100 years, society is struggling to keep up.

As a member of the field of Information Technology, it is much more difficult to understand the hesitancy to move toward a paperless, electronic society. Americans, as a

nation, have become so busy in the quest to have a successful career, a successful family, and a successful personal life, that there is a tendency to isolate one's self from the current trends. It is often easier to use equipment simply for the functions they provide in reaching these goals, that time is not invested in discovering what these new technologies can provide to make day-to-day activities easier to complete.

This project was just that lesson. Each person adds his or her own piece to make the puzzle complete. This troop was strong, but could improve. The suggested changes, while initially met with excitement, were followed with a sense of trepidation. Fears voiced were that the troop would not have a central location for record keeping, if it was electronic. Leaders felt that the files would be on the computer at one person's home, and would be inaccessible. There were also fears that it would not make sense to leave a notebook out of the recordkeeping equation, in favor of an electronic system. The fears seemed to stem more from a fear of change than reasons than true hindrances. While there is still a valid need for a system such as this, one of the main obstacles may be getting the leaders nationwide to join the cause.

From the perspective of a project manager, this project revealed the importance of planning. Before a project is underway, there is a significant amount of time and work that must be done to make sure that the project is worthwhile and should not be discontinued. There are many factors that need to be taken into consideration in the project analysis portion of the project life cycle. Some of the factors to consider are: man power and resources, budget, time frame, as well as the goals of the project. If there is

not enough manpower or resources to complete the project within the required time frame, the project may be worthwhile, but it may not be worthwhile at that point in time. Budget is also critical. It is not only important to consider the budget, but also to have researched the intended course of action, as well as possible back up plans.

WHAT WOULD HAVE BEEN DONE DIFFERENTLY

If this project were done on a full scale, it should be done at a local council or even national council level. There are very few activities and requirements in the Girl Scout organization that are standard nationwide. While this factor in itself diversifies and on occasion is detrimental to the success of some chapters, it should be taken advantage of in every possible situation. The national council has its own web server. This could be used beneficially nationwide by creating a system that allows each troop, as it forms, to sign up and register their troop. Within this registration, all available badges and their required activities would be listed, and maintenance would be required only in one location for all troops nationwide.

The database and the fields it tracks would be expanded as well. There would be a much more detailed database, with stronger security, to protect Girl Scout information. The database could be developed even further, to eliminate the need for registration forms to be sent to local councils for processing. Having such a database would also benefit the Girl Scout councils in their quest for donation and recruitment. Having a national

database of girls and parents involved in the organization would assist in soliciting volunteers, member or even donations.

Changes to how the project was managed would include involving a bigger team of experts and soliciting more user input throughout the project. As a “one-man-band” style project, it was much more difficult to complete in the required time frame, being the only resource. A project of such magnitude as the one described above would require a team of individuals from programmers to end users, with a single point project manager. This would be an exciting project to manage, with great potential for success.

INITIAL PROJECT EXPECTATIONS

Initial project expectations were grand. The initial idea was a system that would track, in detail, available activities, the number of activities required to earn a badge, and the badge accomplishments themselves. As the project progressed, it became apparent that the Girl Scout organization has some similar goals in mind, and the project may be duplicating work. Therefore, the project was scaled down to the basics, at the same time that ideas were streaming on how the project could be enhanced to make a successful nationwide project.

As the project was scaled down, a new set of expectations was set. These expectations were to create a system that provided a basic set of information to track badges and their

completion status for each member. The end result of this database has met those expectations, but is still unable to provide the intended service due to financial restraints.

WHERE WOULD THE PROJECT PROGRESS FROM HERE

While the project has been brought to a halt at this point, if it were to be continued, the next steps would be multiple. The first step would be to revisit the project direction. It should be determined whether this project should be implemented for a single troop, or modified to include the entire unit, or possibly even the entire local council. While troop and councils across the nation would benefit from this tracking system, the current organization structure must be kept in mind. As a locally initiated project, the highest level of the organization is the local council. The local council has expressed interest and the determination needs to be made as to whether or not to move forward in petitioning the local council for assistance in developing this system for troops in the region.

The next step is to revisit the budget. Once it has been determined at what level the project should be implemented, a new budget will likely play a large role in the project. The project budget will need to include programming costs and hosting costs, if applicable. There may be no hosting costs if the project is scaled at the local council level and the local council has a web server on which to host the database. Additionally, there may be limited costs if the local council staffs a programmer who would be able to work with the project manager to develop the online portion.

Once the scope of the project is determined, the next step will be to take the prototype and host it online. At this point, a system can be setup to get online feedback from leaders, parents and girls regionally. This feedback will assist the developer and project manager in determining the needs of the users across the region, as they may differ. After developing a new project plan based on the feedback, the new database can be developed, along with the online programming. The new database can be placed online for another round of testing by regional users, with a final session of corrections and additions, before going live.

CONCLUSION

This project was a testament of willingness, determination, and sheer mental strength. Yet, in choosing a project that was for an organization which teaches the same values that the project was testing, there was a certain beautiful irony. Each of the girls who will benefit from such a leap in the modernization of the organization that has touched so many lives, will take with them a desire to better their own community and world.

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Girl Scouts Troop Badge Record

Personal Junior Girl Scout Recognition Record for:

TROOP # 343

Girl Scouting Basics											
BADGE NAME	REQUIREMENTS COMPLETED (MUST COMPLETE AT LEAST 6 FOR ALL BADGES)										DATE AWARDED
	01	02	03	04	05	06	07	08	09	10	
1. Girl Scouting Around the World (Bronze # 3 Required Badge Choice)											
2. Girl Scouting in My Future (Bronze # 3 Required Badge Choice)											
3. Girl Scouting in the USA (Bronze # 3 Required Badge Choice)											
4. Cookie Connection											

Adventures in Girl Scouting											
BADGE NAME	REQUIREMENTS COMPLETED (MUST COMPLETE AT LEAST 6 FOR ALL BADGES)										DATE AWARDED
	01	02	03	04	05	06	07	08	09	10	
1. Business Wise											
2. Careers											
3. Global Awareness (Rainbow # 1 Activity Choice)											
4. Humans and Habitats (Rainbow # 1 Activity Choice)											
5. Lead On (World # 2 Required Badge Choice) also (Bronze # 3 Required Badge Choice)											
6. Model Citizen (World # 2 Required Badge Choice)											
7. Money Sense											
8. On My Way											
9. Traveler											
10. World Neighbors (Rainbow # 1 Activity Choice)											

It's Great to Be a Girl											
BADGE NAME	REQUIREMENTS COMPLETED (MUST COMPLETE AT LEAST 6 FOR ALL BADGES)										DATE AWARDED
	01	02	03	04	05	06	07	08	09	10	
1. Becoming a Teen											
2. Being My Best (Star # 2 Activity Choice)											
3. Consumer Power											
4. It's Important to Me (Sun # 3 Required Badge Choice)											
5. Looking Your Best (Star # 2 Activity Choice)											

Family and Friends											
BADGE NAME	REQUIREMENTS COMPLETED (MUST COMPLETE AT LEAST 6 FOR ALL BADGES)										DATE AWARDED
	01	02	03	04	05	06	07	08	09	10	
1. Across Generations											
2. Caring for Children											
3. Celebrating People (Rainbow # 5 Activity Choice)											
4. Communication											
5. Healthy Relationships											
6. Local Lore (Rainbow # 5 Activity Choice)											
7. My community (Rainbow # 5 Activity Choice)											
8. My Heritage											
9. Pet Care											

How to Stay Safe											
BADGE NAME	REQUIREMENTS COMPLETED (MUST COMPLETE AT LEAST 6 FOR ALL BADGES)										DATE AWARDED
	01	02	03	04	05	06	07	08	09	10	
1. Car Care											
2. The Choice is Yours (Sun # 3 Required Badge Choice)											
3. First Aid											
4. High on Life (Sun # 3 Required Badge Choice)											
5. Safety First											

Be Healthy Be Fit											
BADGE NAME	REQUIREMENTS COMPLETED (MUST COMPLETE AT LEAST 6 FOR ALL BADGES)										DATE AWARDED
	01	02	03	04	05	06	07	08	09	10	
1. Adventure Sports											
2. Court Sports											
3. Environmental Health											
4. Field Sports											
5. Food Power											
6. Fun and Fit											
7. A Healthier You (Star # 2 Activity Choice)											
8. Highway to Health											
9. Sports Sampler											
10. Stress Less											
11. Walking for Fitness											
12. Winter Sports											

Let's Get Outdoors											
BADGE NAME	REQUIREMENTS COMPLETED (MUST COMPLETE AT LEAST 6 FOR ALL BADGES)										DATE AWARDED
	01	02	03	04	05	06	07	08	09	10	
1. Camp Together											
2. Earth Connections (World # 3 Activity Choice)											
3. Eco-Action (World # 3 Activity Choice)											
4. Finding Your Way											
5. Frosty Fun											
6. Hiker											

Let's Get Outdoors (Continued)												
BADGE NAME		REQUIREMENTS COMPLETED (MUST COMPLETE AT LEAST 6 FOR ALL BADGES)										DATE AWARDED
		01	02	03	04	05	06	07	08	09	10	
7.	Horse Fan											
8.	Horse Rider											
9.	Outdoor Cook											
10.	Outdoor Creativity											
11.	Outdoor Fun											
12.	Outdoors in the City											
13.	Plants and Animals											
14.	Small Craft											
15.	Swimming											
16.	Water Fun											
17.	Wildlife											
18.	Your Outdoor Surroundings (World # 3 Activity Choice)											

Create and Invent												
BADGE NAME	REQUIREMENTS COMPLETED (MUST COMPLETE AT LEAST 6 FOR ALL BADGES)										DATE AWARDED	
	01	02	03	04	05	06	07	08	09	10		
1. Architecture												
2. Art in the Home												
3. Art in 3-D												
4. Art to Wear												
5. Books												
6. Camera Shots												
7. Ceramics and Clay												
8. "Collecting" Hobbies												
9. Creative Solutions												
10. Dance												
11. Discovering Technology												
12. "Doing" Hobbies												
13. Drawing and Painting												
14. Fold Arts												
15. Jeweler												
16. "Making" Hobbies												
17. Math Whiz												
18. Ms. Fix It												
19. Prints and Graphics												
20. Puzzlers												
21. Sew Simple												
22. Theater												
23. Toy Maker												
24. Visual Arts												
25. Write All About It												
26. Yarn and Fabric Arts												

Explore and Discover												
BADGE NAME	REQUIREMENTS COMPLETED (MUST COMPLETE AT LEAST 6 FOR ALL BADGES)										DATE AWARDED	
	01	02	03	04	05	06	07	08	09	10		
1. Aerospace												
2. Computer Fun												
3. Globe Trotting												
4. Let's Get Cooking												
5. Making It Matter												
6. Making Music												

Explore and Discover (Continued)											
BADGE NAME	REQUIREMENTS COMPLETED (MUST COMPLETE AT LEAST 6 FOR ALL BADGES)										DATE AWARDED
	01	02	03	04	05	06	07	08	09	10	
7. Music Fan											
8. Oil Up											
9. Rocks Rock											
10. Science Discovery											
11. Science in Everyday Life											
12. Science Sleuth											
13. Sky Search											
14. Water Wonders											
15. Weather Watch											

Junior Handbook and Other Special Awards											
AWARD NAME	REQUIREMENTS COMPLETED (MUST COMPLETE ALL OPEN BLOCKS)										DATE AWARDED
	01	02	03	04	05	06	07	08	09	10	
Sign of the Star											
Sign of the Rainbow											
Sign of the Sun											
Sign of the World											
Bridge to Cadette Girl Scouts											
Junior Aid Strip (Bronze # 3 Required Award Choice)											
Junior Girl Scout Leadership Pin (Bronze # 3 Required Award Choice)											
Bronze Award											
Religious Award											
Cookie Participation Patch											
Cookie Sale Activity Pin											
Cookie Booth Sale Patch											
Membership Star and Disk											
Banner Troop Patch (P) or Star (S)											

Girl Scout Tracking Database Information:

Data to track:

- First Name (needs to be hidden/secured)
- Last Name (needs to be hidden/secured)
- ID (needs to be non-specific)
- Password (needs to be encrypted)
- Section (badges are grouped by sections; section names are unique)
- Badge (badges are unique and have 10 activities)
- Activities (activities are not unique; activity names may belong to multiple badges)
- Activity status (i – in progress; c - complete)
- Activity completion date (not necessary, unless it helps with the badge completion date)
- Badge completion date (date to be entered by leader)
- Badge award date (date to be entered by leader)

User Group Rights:

Administrator (leaders)

- New user setup
- Reports (should be able to run reports for any member)
- Reset passwords
- Data administration (update records for activities/badges completed)

User (girls/parents)

- Reports (should only be able to run reports on own id)
- Password maintenance

Forms

- Login screen (admin/user)
- New user setup (admin)
- Activity update (admin)
- Report creation (admin/user)

Reports

- Various date ranges
- Badge status (completed/not completed/awarded)

Mock Login Screen

**Girl Scout Troop #343
Activity Database
Login**

ID:

Password:

Mock User Administration Screen

Girl Scout Troop #343
Activity Database
Main Menu

User Administration

Badge Administration

Report Creation

Mock User Administration Screen

Girl Scout Troop #343
Activity Database
User Administration

ID	First Name	Last Name	Password	Rights
gslkr	Layne	Roetker	*****	user
ldrmlr	Melissa	Roetker	*****	admin

Add New User

Modify User

Delete User

Mock Badge Administration Screen

Girl Scout Troop #343
Activity Database
Badge Administration

Girl Scout

? gslkr

Section

? Girl Scouting Basics

Badge

? Girl Scouting Around the World

Activities:

☒ Thinking Day

☐ Girl Scouts Founder: Juliette Gordon Low

☒ WAGGGS on the Web

☒ International Expert

☐ Show the World

☐ World Service

☐ Connect with Younger Girls

☐ Common Roots

☐ Just for Girls

☒ WAGGGS Travel

Badge Completion Date:

Award Date:

Apply Changes

Mock Report Screen

Girl Scout Troop #343
Activity Database
Report Creation

*

 ID:

Badge	Completion Date	Award Date
Girl Scouting Around the World	12/01/04	12/20/04

*This drop down would only be available to admin users. Regular users would only have their own id.

**PROFESSIONAL PROJECT SURVEY
MELISSA ROETKER**

1. What is your affiliation with the GSUSA?
☐ Leader/Co-Leader/Adult Volunteer
☐ Parent
☐ Both of the above
☐ Other
2. How many hours per week, do you estimate you spend doing volunteer work for GSUSA?
☐ 0-1
☐ 2-3
☐ 4-6
☐ 7-10
☐ Other (please list approximate hours _____)
3. How many years have you been a volunteer with GSUSA?
☐ 0-1
☐ 2-3
☐ 4-5
☐ 6 or more years
4. If you have been involved with a troop that disbanded, please list the reason:
☐ not enough members
☐ not enough adult volunteers
☐ other reason _____
5. What type of tracking method does your troop currently use for finances?
☐ electronic
☐ manual
☐ not applicable
6. What type of tracking method does your troop currently use for badges?
☐ electronic
☐ manual
☐ not applicable
7. What type of tracking method do you prefer?
☐ electronic
☐ manual
☐ not applicable
8. Does your troop currently have a website?
☐ yes
☐ no
☐ not applicable

9. Does your troop communicate with parents via email?
☐ yes
☐ no
☐ not applicable
10. Do you feel an online tracking system, such as the one demonstrated this evening, would be beneficial to you as a leader/volunteer?
☐ yes
☐ no
☐ not applicable
11. Does the tracking system demonstrated this evening appear easy to use?
☐ yes
☐ no
☐ not applicable
12. Do you feel the girls and parents in your troop would benefit from the tracking system demonstrated this evening?
☐ yes
☐ no
☐ not applicable
13. Would your troop benefit from some form of electronic system that it is not currently using? If so, please list examples (ie Financial Software, Website, etc.).
☐ yes, type _____
☐ no
☐ not applicable
14. What suggestions do you have to improve the tracking system demonstrated this evening?

Additional Comments:
